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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,493	04/20/2004	Makoto Horiuchi	5077-000213	5279
27572	7590	01/18/2006		
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303				
			EXAMINER KEANEY, ELIZABETH MARIE	
			ART UNIT 2882	PAPER NUMBER

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/828,493	<b>Applicant(s)</b> HORIUCHI ET AL.	
	<b>Examiner</b> Elizabeth Keaney	<b>Art Unit</b> 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/20/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/20/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The use of the trademark Vycor (page 10, line 24) has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

***Double Patenting***

Claims 1-4,7-12 and 15-18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 6,965,202 (Hataoka et al.; hereinafter Hataoka) in view of U.S. Patent Application Publication No. 2002/0017842 (Narita).

Re claims 1,3 and 4: Hataoka discloses, in claims 1 and 24, a lamp with a reflector comprising a high pressure discharge lamp including a luminous bulb with a luminous substance enclosed therein and a pair of sealing portions extending from the luminous bulb; and a reflector for reflecting light emitted from the high pressure discharge lamp, at least one of the pair of sealing portions includes a first glass portion extending from the luminous bulb and a second glass portion provided in at least a portion of the inside of the first glass portion, and both the pair of sealing portions have portions to which a compressive stress is applied.

However, Hataoka fails to teach or fairly suggest the reflector having a first opening located in a forward position of the reflector with respect to a light emission direction, the reflector is formed with a second opening into which one of the pair of sealing portions is inserted, and clearance between the one sealing portion and the second opening is substantially filled, when the pair of sealing portions are disposed to extend in the substantially horizontal direction, a portion of the reflector is formed with an air inlet for introducing an air flow striking against an upper portion of the luminous bulb and then coming into a lower portion of the luminous bulb.

Narita discloses, in figure 3 and throughout the disclosure, a lamp comprising a reflector having a first opening located in a forward position of the reflector with respect to a light emission direction, the reflector is formed with a second opening into which one of the pair of sealing portions is inserted, and clearance between the one sealing portion and the second opening is substantially filled, when the pair of sealing portions are disposed to extend in the substantially horizontal direction, a portion of the reflector is formed with an air inlet for introducing an air flow striking against an upper portion of the luminous bulb and then coming into a lower portion of the luminous bulb.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the lamp of Hataoka with the reflector of Narita because it reduces the amount of heat built-up within the lamp thereby avoiding premature failure of the lamp.

Re claims 2,7,8,9 and 10: Hataoka discloses in claims 13 and 21, at least mercury is enclosed as the luminous substance in the luminous bulb, the amount of the enclosed mercury is  $300 \text{ mg/cm}^3$  or more based on the internal volume of the luminous bulb, halogen is enclosed in the luminous bulb, and the lamp has a bulb wall load of  $80 \text{ W/cm}^2$  or more.

Re claims 11 and 12: Hataoka discloses in claims 12,17 and 18, wherein in the luminous bulb, electrode rods are opposed to each other, each of the electrode rods is

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connected to a metal foil, and the metal foil is provided in the sealing portion and at least a portion of the metal foil is positioned in the second glass portion.

Re claims 15 and 16: Hataoka discloses in claims 6 and 20, a metal portion which comes into contact with the second glass portion and which is used for supply of power is provided in the sealing portion, the compressive stress is applied in at least the longitudinal direction of the sealing portion, the first glass portion contains 99 wt% or more of SiO<sub>2</sub>, and the second glass portion contains SiO<sub>2</sub> and at least one of 15 wt% or less of Al<sub>2</sub>O<sub>3</sub> and 4 wt% or less of B.

Re claims 17 and 18: Hataoka discloses in claims 1,11,16,18 and 23, the compressive stress in a region of the sealing portion corresponding to the second glass portion is from 10 kgf/cm<sup>2</sup> to 50 kgf/cm<sup>2</sup> inclusive when the sealing portion is measured by a sensitive color plate method utilizing the photoelastic effect.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 19 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Narita.

Re claim 19: Narita discloses, in figure 3 and throughout the disclosure, a lamp with a reflector, comprising:

- a high pressure mercury lamp including a luminous bulb (10) with at least mercury enclosed therein (paragraph 16, lines 1-3) and a pair of sealing portions extending from the luminous bulb; and
- a reflector (20) for reflecting light emitted from the high pressure mercury lamp,
  - wherein the reflector has a first opening located in a forward position of the reflector with respect to a light emission direction, the reflector is formed with a second opening into which one of the pair of sealing portions is inserted, and clearance between the one sealing portion and the second opening is substantially filled,
- the luminous bulb of the high pressure mercury lamp encloses mercury in an amount of  $270 \text{ mg/cm}^2$  or more based on the internal volume of the luminous bulb (paragraph 16, line 3),
- the high pressure mercury lamp has a bulb wall load of  $80 \text{ W/cm}^2$  or more (paragraph 16, line 2),
- when the pair of sealing portions are disposed to extend in the substantially horizontal direction, an air inlet is formed in a region of the reflector located below the sealing portion and in front of the luminous bulb with respect to the light emission direction, and an air vent is formed in a

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region of the reflector located above the sealing portion and in front of the luminous bulb with respect to the light emission direction, and

- a duct for passing air is coupled to the air inlet (paragraph 55, lines 6-7).

Re claim 27: Narita discloses an image projection apparatus comprising the lamp of claim 19 with a reflector and an optical system using the lamp with a reflector as a light source (paragraph 2, lines 3-5).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4,7-12,17,18,25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi et al (WO 01/29862; hereinafter Horiuchi) in view of Narita.

Re claims 1,3 and 4: Horiuchi discloses, in figure 10 and throughout the disclosure, a lamp with a reflector, comprising:

- a high pressure discharge lamp (10) including a luminous bulb with a luminous substance enclosed therein and a pair of sealing portions (20) extending from the luminous bulb; and
- a reflector (60) for reflecting light emitted from the high pressure discharge lamp,



- wherein the reflector has a first opening located in a forward position of the reflector with respect to a light emission direction, the reflector is formed with a second opening into which one of the pair of sealing portions is inserted, and clearance between the one sealing portion and the second opening is substantially filled,
- at least one of the pair of sealing portions includes a first glass portion extending from the luminous bulb and a second glass portion provided in at least a portion of the inside of the first glass portion, and both the pair of sealing portions have portions to which a compression stress is applied.

However, Horiuchi fails to teach or fairly suggest when the pair of sealing portions are disposed to extend in the substantially horizontal direction, a portion of the reflector is formed with an air inlet for introducing an air flow striking against an upper portion of the luminous bulb and then coming into a lower portion of the luminous bulb.

Narita discloses, in figure 3 and throughout the disclosure, a lamp wherein the reflector is formed with an air inlet for introducing an air flow striking against an upper portion of the luminous bulb and then coming into a lower portion of the luminous bulb, wherein a duct for passing air is coupled to the air inlet (paragraph 55, lines 6-7).

Re claims 2,7,8,9 and 10: Horiuchi discloses wherein at least mercury is enclosed as the luminous substance in the luminous bulb, the amount of the enclosed

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mercury is  $300 \text{ mg/cm}^3$  or more based on the internal volume of the luminous bulb, halogen is enclosed in the luminous bulb, and the lamp has a bulb wall load of  $80 \text{ W/cm}^2$  or more (page 21, line 5).

Re claims 11 and 12: Horiuchi discloses, in figures 8a and 11 and throughout the disclosure, in the luminous bulb, electrode rods (12) are opposed to each other, each of the electrode rods is connected to a metal foil (24), and the metal foil is provided in the sealing portion and at least a portion of the metal foil is positioned in the second glass portion.

Re claims 17 and 18: Horiuchi discloses the compressive stress in a region of the sealing portion corresponding to the second glass portion is from  $10 \text{ kgf/cm}^2$  to  $50 \text{ kgf/cm}^2$  inclusive when the sealing portion (page 28, lines 11-12).

The Examiner notes that the method of finding the compressive stress, specifically the sensitive color plate method utilizing the photoelastic effect, does not have any patentable weight, rather only that the compressive stress is present.

Re claims 25 and 26: Horiuchi discloses an image projection apparatus comprising the lamp with reflector of claims 1 and 3; and an optical system using the lamp with a reflector as a light source (page 1, lines 3-6).

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Claims 5,6,20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi and Narita as applied to claims 1 and 3 above, and further in view of Pitkjann (US Patent 3,688,149).

Horiuchi and Narita teach all the limitations as shown above.

However, they fail to teach or fairly suggest a concave lens attached to the front of the first opening of the reflector.

Pitkjann teaches, in figure 4 and throughout the disclosure, a concave lens attached to the front portion of a reflector within a lamp.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Horiuchi and Narita with a concave lens because the concave lens better focuses the light emitted by the lamp (Pitkjann; column 2, lines 16-19).

Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi and Narita as applied to claims 1 and 3 above, and further in view of Okamoto et al. (US Patent 6,919,686; hereinafter Okamoto).

Horiuchi and Narita teach all the limitations as shown above.

However, they fail to teach or fairly suggest a trigger line wound around at least one of the pair of sealing portions.

Okamoto discloses, in figure 2a and throughout the disclosure, a trigger line wound around one sealing portion of a discharge lamp.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the lamp disclosed by Horiuchi and Narita to include a trigger line because it aids in starting the discharge within the lamp, thereby producing light emission faster.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Narita as applied to claim 19 above, and further in view of Okamoto.

Narita teaches all the limitations as shown above.

However, Narita fails to teach or fairly suggest a trigger line wound around at least one of the pair of sealing portions.

Okamoto discloses, in figure 2a and throughout the disclosure, a trigger line wound around one sealing portion of a discharge lamp.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the lamp disclosed by Narita to include a trigger line because it aids in starting the discharge within the lamp, thereby producing light emission faster.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi and Narita as applied to claims 1,3,11 and 12 above, and further in view of Hataoka et al. (US Patent Application Publication 2003/0102805; hereinafter Hataoka).

Horiuchi and Narita teach all the limitations as shown above.

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However, they fail to teach or fairly suggest a coil at least the surface of which contains at least one metal selected from the group consisting of Pt, Ir, Rh, Ru and Re is wound around at least part of a portion of the electrode rod embedded in the sealing portion.

Hataoka discloses, in figure 26 and throughout the disclosure, a coil (30) at least the surface of which contains at least one metal selected from the group consisting of Pt, Ir, Rh, Ru and Re is wound around at least part of a portion of the electrode rod embedded in the sealing portion.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the coil disclosed by Hataoka within the lamp taught by Horiuchi and Narita because it improves the strength of the lamp against the pressure of the lamp.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent 6,831,414 discloses the current state of the art.
- US Patents 6,844,679 and 6,890,236 disclose a lamp having a compression stress on both sealing portions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Keaney whose telephone number is (571)272-

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2489. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday  
7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571)272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Elizabeth Keaney  
Examiner  
Art Unit 2882



EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER